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FLEAS OF NEW ENGLAND

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The present paper is a preliminary report on the writer's studies of New England fleas carried on for the past four years. No species are described as new, but several are recorded from New England for the first time. When more material is available, it is planned to publish a more complete paper, including all known records, and new keys.

The species are arranged according to the classification adopted by Irving Fox (1940), whose work, although not critical, is of great importance and value. I record only specimens examined personally by me. No material in the United States National Museum is included, for this was published by Fox (1940). In some cases, there is apparent duplication, owing to the fact that duplicates of certain collections had already been sent to the National Museum before my studies were begun. This also applies to apparent duplication in the case of a few records published by Jordan, where specimens had already been sent to him. All the specimens recorded from Milton, Sagamore Beach, Westboro, Massachusetts; and Center Ossipee, New Hampshire, were collected by me. With few exceptions, all the material from Vermont was collected by F. L. Osgood.

The writer takes this opportunity to express his appreciation to the following persons who have contributed to this study. Collections were loaned by George H. Plumb, Connecticut Agricul-

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tural Station; J. G. Conklin, University of New Hampshire; M. E. Smith, Massachusetts State College; Charles O. Dirks, University of Maine. Richard Dow made available the collection of the New England Museum of Natural History, Boston; and Nathan Banks and J. Bequaert, that of the Museum of Comparative Zoölogy, Cambridge. F. L. Osgood of Rutland, Vermont, loaned me some very worthwhile material, providing many new records from Vermont. Carroll N. Smith and H. K. Gouck, of the U. S. Bureau of Entomology, have very kindly sent numerous fleas collected on the island of Martha's Vineyard. In one lot the writer has found a male and female of *Rectofrontia fraterna* (Baker), a species which has been recorded only once previously from the eastern United States.

Family Hectopsyllidæ

Echidnophaga gallinacea (Westwood).—No records of the occurrence of this species north of the state of New York are known to the writer, although Trembly and Bishopp (1940) cite a record in the literature from Providence, Rhode Island. This species has been reported from New York City on rats, and there is a possibility that it might be found on rats in coastal regions of New England, especially in ports.

Family Pulicidæ

1. *Hoplopsyllus lynx* (Baker).—NEW HAMPSHIRE: Waterville, March 15, 1935, 3 males and 8 females, off *Lynx canadensis* (J. D. Smith). Hancock, 1 male and 1 female, off same host. Coos County, 3 males and 7 females, off wildcat.

2. *Xenopsylla cheopis* (Rothschild).—MASSACHUSETTS: Boston, a large series, collected off rats near wharves during a rat-flea survey conducted in 1934 by Dr. Marshall Hertig and Dr. E. Elizabeth Jones. Fox (1940) records it from Providence, Rhode Island.

3. *Pulex irritans* Linnaeus.—This species is recorded from Fall River, Massachusetts by Ewing (1931). Trembly and Bishopp (1940) list New Bedford, Massachusetts, in addition. No specimens from New England have come to the writer's attention during the past four years, although he (1942) has recorded it from Newfoundland, and it probably should be expected sporadically in New England.

4. *Cediopsylla simplex* (Baker).—CONNECTICUT: Durham, 2 females, off red fox. Litchfield, 3 females, off fox. MAINE: Lyman, 3 males and 3 females, off *Lepus americanus virginianus*. MASSACHUSETTS: Needham, 2 males and 2 females, off *Sylvilagus transitionalis*. Harvard, 2 females, off same host. Amherst, 1 female, off *Lepus* sp. Hardwick, 1 male, off wildcat. Amherst, 1 male, off *Vulpes fulva*. Cummington, 3 females, off cat. Canton, 1 male and 2 females, off *Sylvilagus* sp. Boston, 2 females, off domestic cat. Oak Bluffs, January 14 and 16, 1942, off cottontail rabbit, 3 males and 5 females (H. K. Gouck and C. N. Smith, Bishopp nos. 31112 and 31113). NEW HAMPSHIRE: Durham, 2 males and 2 females, off *Sylvilagus* sp. VERMONT: Saxtons River, 1 male and 5 females, off *Lepus americanus virginianus*.

5. *Ctenocephalides felis* (Bouché).—CONNECTICUT: Numerous specimens from the following localities: Ansonia, no host data. Guilford, in house. Hartford, in house. Woodmont, off dog. Hamden, in house. Willimantic, off dog. Fairfield, no host data. New Haven, off cat. MASSACHUSETTS: Boston, 2 males, caught in Museum; 1 male, off man (J. Bequaert). Cohasset, July–August, 1934, a large series, no host data (Mrs. W. B. Binnian). Wellesley, 3 males and 5 females, no host data. Westboro, 2 males and 2 females, off cat; a series off dog. NEW HAMPSHIRE: Center Ossipee, a series, off dog. Raymond, 1 male and 1 female, in house. VERMONT: Saxtons River, August 10, 1941, 2 females, in house (F. L. Osgood).

6. *Ctenocephalides canis* (Curtis).—MASSACHUSETTS: Wenham, 2 males and 2 females, off woodchuck. VERMONT: Rutland, 1 male and 1 female, off domestic cat.

Family Dolichopsyllidæ

7. *Trichopsylla lotoris* Stewart.—This species has been recorded by Fox (1940) from Maine, occurring on *Procyon lotor lotor*. No further records or specimens have been seen by the present writer.

8. *Ctenophthalmus pseudagyrtes* Baker.—CONNECTICUT: New Haven, male, and female, off short-tailed shrew. Hamden, 2 males, off mole. Rainbow, 1 male, off large short-tailed shrew. MAINE: Deer Island, 1 male, off *Clethrionomys gapperi ochraceus*.

MASSACHUSETTS: Natick, 4 males and 2 females, in mouse nest. Newton Center, 1 male, off *Blarina brevicauda talpoides*. Peter-sham, 1 female, off *Condylura cristata*. Sagamore Beach, 1 female, off *Blarina brevicauda talpoides*; a large series off *Tamias striatus*. Westboro, 1 female, off *Marmota monax* ssp. Concord, 2 males and 1 female, off *Blarina* sp. Barnstable, December 17, 1933, 1 male and 1 female, off *Microtus p. pennsylvanicus* (D. Griffin). Milton, 1 male, off *Blarina brevicauda talpoides*. Chilmark, March 26, 1942, off *Microtus pennsylvanicus*, 2 males and 4 females (H. K. Gouck, Bishopp no. 31124). Edgartown, March 25, 1942, off same host, 4 males and 2 females (H. K. Gouck, Bishopp no. 31123). Gay Head, off same host, several records as follows: February 17, 1942, 2 males and 3 females (H. K. Gouck, Bishopp no. 31116); March 19, 1942, 9 males and 11 females (H. K. Gouck, Bishopp no. 31120); April 17, 1942, 1 male and 8 females (H. K. Gouck, Bishopp no. 31129); March 19, 1942, in nest of same host, 8 males and 18 females (H. K. Gouck, Bishopp no. 31125); March 19, 1942, off *Peromyscus leucopus* ssp., 1 male and 2 females (H. K. Gouck, Bishopp no. 31121). Vineyard Haven, April 16, 1942, off *Microtus pennsylvanicus*, 9 males and 8 females; and April 18, off same host, 4 males and 4 females (H. K. Gouck, Bishopp nos. 31128 and 31130). West Tisbury, April 8, 1942, off same host, 9 males and 8 females (H. K. Gouck, Bishopp no. 31126). NEW HAMPSHIRE: Hancock, 1 male and 3 females, off *Parascalops breweri*. Franklin, 4 males and 1 female, off mole. Center Ossipee, 1 male and 2 females, and 1 male, all off *Blarina brevicauda talpoides*. VERMONT: Bread-loaf, 1 male, off *Blarina brevicauda*. Middlebury, 2 males, off same host. Rutland, 1 female, off same host. Sherburne, 1 female, off *Napaeozapus i. insignis*.

9. *Rectofrontia fraterna* (Baker).—MASSACHUSETTS: Edgartown, March 25, 1942, off *Microtus pennsylvanicus*, 1 male and 1 female (H. K. Gouck, Bishopp no. 31123). This record represents the first for New England, and the second for the eastern United States. Fox (1940) records a single male specimen, taken at Kensington, Maryland, off the same host. The species is ordinarily found on various small mammals in the western states, and as yet we know of only two eastern records. Further search should be made for this species.

Conorhinopsylla stanfordi Stewart.—No records of the occurrence of this species in New England are known to the writer. It was described from a red squirrel in New York State, and as it has been collected from other species of squirrels, it should be searched for in New England.

10. *Oropsylla arctomys* (Baker).—CONNECTICUT: Liberty Hill, 3 males and 1 female, off *Syrnium nebulosum*. Willington, 2 females, off woodchuck, *Marmota monax* ssp. North Stonington, 2 males, off same host. Durham, 1 female, off same host. Brookfield, 2 males and 6 females, off same host. Kent, 1 male and 3 females, off same host. MASSACHUSETTS: Abington, 1 female, off woodchuck. North Eastham, 2 males and 2 females, off same host. Essex, 1 male and 1 female, off same host. Wellesley, 1 male, off same host. Holbrook, 1 male, off same host. Barnstable, April 5, 1934, 1 male and 2 females, off same host (D. Griffin). Marshfield, 3 males and 2 females, off same host. Westboro, 1 male and 2 females, off same host. Needham, 3 males and 1 female, off same host. Newton Center, 2 males and 2 females, off same host. Hadley, 2 males and 2 females, off same host. Charles River Village, 1 female, off skunk. Essex, May 15, 1919, 1 female, off *Marmota monax* ssp. (A. B. Fuller). Concord, May 2, 1942, off same host, 1 male and 6 females (W. E. Schevill). NEW HAMPSHIRE: Franklin, 2 males and 4 females, off woodchuck.

11. *Odontopsyllus multispinosus* (Baker).—MASSACHUSETTS: Canton, 1 female, off cottontail rabbit. Cohasset, 1 male, off same host. Harvard, 2 males and 1 female, off same host.

Ceratophyllus celsus Jordan.—No records of the occurrence of this species in New England are known to the writer. Fox (1940) records it from the nests of cliff swallows in New York State.

12. *Ceratophyllus diffinis* Jordan.—NEW HAMPSHIRE: Holderness, male and female, from nest of *Sciurus aurocapillus*.

13. *Ceratophyllus idius* Jordan and Rothschild.—MASSACHUSETTS: Groton, June 26, 1941, 1 male, in nest of *Iridoprocne bicolor* (W. P. Wharton). North Eastham, 2 males and 2 females, off same host. Wakefield, large series, off same host (E. E. Tyzzer). Rock, 1 male and 3 females, off same host; 4 males and 2 females, in nest of *Sialia sialis*.

14. *Ceratophyllus gallinae* (Schrank).—CONNECTICUT: Thomp-

sonville, male and female, in nest of *Sialia sialis*. Madison, 2 females, in poultry house. MAINE: Eliot, male and female in chicken house. MASSACHUSETTS: Babson Park, June 7, 1928, 7 males and 8 females, in nest of *Sialia sialis*. Groton, male and female, off same host; male and female, in nest of starling. Wakefield, 2 males, in nest of *Iridoprocne bicolor* (E. E. Tyzzer). NEW HAMPSHIRE: Woodstock, male and female, in hen house.

15. *Ceratophyllus riparius* Jordan and Rothschild.—MAINE: Kent Island, 2 males and 2 females, in nest of *Riparia r. riparia* (Audubon Society). NEW HAMPSHIRE: Durham, male and female, no host data.

16. *Opisodasys pseudarctomys* (Baker).—MAINE: East Blue Hill, 1 female, off *Sciurus hudsonicus loquax* (V. G. Dethier). Windy Pitch, Mt. Katahdin, 4 males and 5 females, off *Glaucomys sabrinus*. NEW HAMPSHIRE: Peterboro, 2 females, off *Glaucomys sabrinus macrotis*. VERMONT: Mendon, male and female, off *Glaucomys v. volans*. Saxtons River, 4 males and 6 females, off same host.

17. *Orchopeas wickhami* (Baker).—CONNECTICUT: Mount Carmel, 1 female, off mouse. Hamden, 2 males and 2 females, off *Sciurus hudsonicus loquax*. MASSACHUSETTS: Amherst, 1 male and 5 females, off squirrel. Boxboro, 2 males and 2 females, off *Sciurus carolinensis leucotis*. Brookline, 6 males and 1 female, off same host. Cambridge, 1 male, off same host. Cohasset, 1 male and 1 female, off *Sylvilagus* sp. Dedham, 2 males, off *Sciurus hudsonicus loquax*. Harvard, 3 males and 1 female, off same host. Norwell, 1 female, off *Rattus norvegicus*; 1 male and 1 female, off *Sciurus hudsonicus loquax*; 3 females, off *Sciurus carolinensis leucotis*; numerous specimens, off same host, January 2, 1937 (C. V. MacCoy). Penikese Island, 1 female, off field mouse. Sagamore Beach, 2 males and 4 females, off *Sciurus hudsonicus loquax*; 1 male and 3 females, off *Sciurus carolinensis leucotis*; 1 female, off *Tamias striatus lysteri*. Wellesley, 1 female, off *Sciurus carolinensis leucotis*. NEW HAMPSHIRE: Center Ossipee, numerous specimens, off *Sciurus hudsonicus loquax*. Durham, 2 males and 2 females, off *Peromyscus* sp. Peterboro, 1 male and 1 female, off *Glaucomys sabrinus macrotis*. VERMONT: Saxtons River, 1 male and 3 females, off *Glaucomys v. volans*.

18. *Orchopeas caedens* (Jordan).—MASSACHUSETTS: Cambridge, 1 female, off *Sciurus carolinensis leucotis*. MAINE: East Blue Hill, August, 1941, 2 males and 6 females, off *Sciurus hudsonicus loquax* (V. G. Dethier). Blue Hill, August 30, 1941, 1 male and 1 female, off same host (V. G. Dethier). Windy Pitch, Mt. Katahdin, August 23, 1928, 3 males, off *Glaucomyx sabrinus* (W. J. Hamilton, Jr., and F. Harper).

19. *Orchopeas leucopus* (Baker).—MAINE: Deer Island, 2 males and 2 females, off *Peromyscus maniculatus abietorum*. Katahdin Saddle, 1 male, off *Peromyscus maniculatus* ssp. Basin Pond, Mt. Katahdin, 1 male and 5 females, off same host. MASSACHUSETTS: Barnstable, 2 females, off *Mus m. musculus*. Concord, February 17, 1941, 1 male, off *Peromyscus leucopus noveboracensis*. Milton, October 19, 1941, 1 female; 1 female; October 26, 1941, 1 male; 1 male; 1 female; November 9, 1941, 1 male, 2 females, 3 females; all off *Peromyscus leucopus noveboracensis*. Muskeget Island, 4 males and 3 females, off *Peromyscus leucopus* ssp. Wakefield, 1 female, off same host. Westboro, 2 males and 2 females (H. K. Gouck, Bishopp no. 31121); April 10, 1942, February 17, 1942, off *Peromyscus* sp., 1 female (H. K. Gouck, Bishopp no. 31117); March 19, 1942, off same host, 4 males and 2 females (H. K. Gouck), Bishopp no. 31121); April 10, 1942, off same host, 2 males and 2 females (H. K. Gouck, Bishopp no. 31127); March 19, 1942, off *Microtus pennsylvanicus*, 1 female (H. K. Gouck, Bishopp no. 31120). Vineyard Haven, April 16, 1942, off same host, 1 female (H. K. Gouck, Bishopp no. 31128). NEW HAMPSHIRE: Ossipee, 1 male and 2 females, off *Peromyscus maniculatus gracilis*. Center Ossipee, numerous specimens, off *Peromyscus maniculatus gracilis*. Hampton, 1 male, off *Peromyscus* sp. RHODE ISLAND: Kingston, 3 males and 2 females, off *Peromyscus leucopus noveboracensis*. VERMONT: Sherburne, 3 males and 3 females, off *Clethrionomys gapperi ochraceus*. Pittsford Mills, 1 female, off *Peromyscus maniculatus gracilis*. Mendon, 3 females, off *Peromyscus leucopus noveboracensis*. Rutland, 4 males and 4 females, off same host.

20. *Megabothris asio* (Baker).—MASSACHUSETTS: Gay Head, April 10, 1942, off *Peromyscus leucopus* ssp., 1 female; January 21, 1942, off *Microtus pennsylvanicus*, 1 male; March 19, 1942,

in nest of same host, 1 male and 1 female; April 17, 1942, off same host, 3 males and 2 females. Chilmark, March 26, 1942, off same host, 1 male. Vineyard Haven, April 16, 1942, off same host, 1 female. West Tisbury, April 8, 1942, off same host, 1 male. (All collected by H. K. Gouck, Bishopp nos. 31127, 31115, 31129, 31124, 31128, and 31126 respectively.) Gay Head, December 15, 1941, 4 males, off same host (H. K. Gouck). Milton, October 26, 1941, 1 male, off *Microtus p. pennsylvanicus*. NEW HAMPSHIRE: Center Ossipee, 1 male, off same host; 2 males and 1 female, off same host; 1 female, off *Peromyscus maniculatus gracilis*. Durham, 1 female, off *Blarina brevicauda talpoides*. Franklin, August, 1939, 1 female, off *Scalopus aquaticus* (V. G. Dethier). VERMONT: Rutland, 1 male and 1 female, off *Microtus p. pennsylvanicus*.

21. *Megabothris acerbus* (Jordan).—MASSACHUSETTS: Harvard, 2 males, off *Tamias striatus lysteri*. NEW HAMPSHIRE: Center Ossipee, 7 males and 5 females, off same host. VERMONT: Rutland, May 23, 1941, 1 female, in nest of same host (F. L. Osgood).

22. *Megabothris quirini* (Rothschild).—NEW HAMPSHIRE: Center Ossipee, 1 male, off *Microtus p. pennsylvanicus*; August 31, 1941, 1 male, off *Peromyscus maniculatus gracilis*.

23. *Megabothris vison* (Baker).—MAINE: Bayville, 2 females, off *Sciurus hudsonicus loquax*. East Blue Hill, August, 1941, 11 males and 17 females, off same host (V. G. Dethier). Blue Hill, August 30, 1941, 1 female, off same host; August 28, 1941, 1 female, off *Tamias striatus lysteri* (V. G. Dethier).

24. *Nosopsyllus fasciatus* (Bosc).—MAINE: Blue Hill, August 28, 1941, 1 female, off *Tamias striatus lysteri* (V. G. Dethier). MASSACHUSETTS: Boston, 2 males, off domestic rats; July 4, 1886, 2 females, off rats (Samuel Henshaw); 1 male, off man. Norwell, 1 male, off *Rattus norvegicus*. Barnstable, March 31, 1934, 2 females, off same host (D. Griffin). Wakefield, 1 female, off *Microtus p. pennsylvanicus* (E. E. Tyzzer). Westboro, 1 female, off same host.

Family Hystrichopsyllidae

25. *Hystrichopsylla gigas tahavuaana* Jordan.—NEW HAMPSHIRE: Franklin, 1 female, off *Scalopus aquaticus*.

Atyphloceras bishopi Jordan. No records of the occurrence of this species in New England are known to the writer. It has been collected off *Blarina* and *Microtus* in New York State and off *Clethrionomys* in West Virginia.

26. *Stenoponia americana* (Baker).—MASSACHUSETTS: Martha's Vineyard, 1 female, off *Microtus p. pennsylvanicus*. Wellfleet, 1 male, off *Scalopus aquaticus*. Wareham, 1 male, off same host. Chilmark, March 26, 1942, off *Microtus pennsylvanicus*, 2 females (Bishopp no. 31124). Edgartown, March 25, 1942, off same host, 1 female (Bishopp no. 31123); and December 9, 1942, off same host, 4 males and 4 females. West Tisbury, April 8, 1942, off same host, 1 male (Bishopp no. 31126). Gay Head, January 21, 1942, off same host, 1 male (Bishopp no. 31115); March 19, 1942, off same host, 4 males and 2 females (Bishopp no. 31120); April 17, 1942, off same host, 1 male (Bishopp no. 31129); April 10, 1942, off *Peromyscus leucopus* ssp., 1 male and 2 females (Bishopp no 31127). (All collected by H. K. Gouck.)

27. *Peromyscopsylla hesperomys* (Baker).—MASSACHUSETTS: Milton, October 19, 1941, 1 male and 1 female, off *Peromyscus leucopus noveboracensis*; October 26, 1941, 1 male and 2 females, off same host; November 9, 1941, 2 males, off same host. NEW HAMPSHIRE: Center Ossipee, numerous specimens, off *Peromyscus maniculatus gracilis*. VERMONT: Chittenden, 1 female, off *Pipistrellus subflavus obscurus*.

28. *Peromyscopsylla scotti* I. Fox.—MASSACHUSETTS: Edgartown, November 13, 1937, 1 male, off *Peromyscus leucopus fuscus*; October 29, 1937, 1 female (C. N. Smith). These specimens, of which the male is an allotype, are deposited in the United States National Museum. The writer has seen no additional material.

29. *Peromyscopsylla catatina* (Jordan).—MAINE: Chimney Pond, Mt. Katahdin, 1 male, off *Evotomys gapperi* ssp. MASSACHUSETTS: Ashburnham, 1 male, off same host. Milton, October 19, 1941, 1 female, off *Peromyscus leucopus noveboracensis*. NEW HAMPSHIRE: Center Ossipee, 1 female, off *Blarina brevicauda talpoides*; October 13, 1941, 1 female, off *Sciurus hudsonicus loquax* (W. F. Gimpel); September 29, 1940, 2 females, off *Microtus p. pennsylvanicus*; September 1, 1941, 1 male, off *Peromyscus maniculatus gracilis*.

30. *Ctenopsyllus segnis* (Schönherr).—MASSACHUSETTS: Cambridge, 1 male, off mouse.

31. *Nearctopsylla genalis* (Baker).—VERMONT: Sherburne, 1 female, off *Clethrionomys gapperi ochraceus*. Mendon, 2 females, off *Mustela c. cicognani*; 1 female, off *Glaucomys v. volans*. Saxtons River, 1 male, off same host.

32. *Doratopsylla blarina* C. FOX.—CONNECTICUT: Rainbow, 1 female, off large short-tailed shrew. MASSACHUSETTS: Concord, 1 male and 1 female, off *Blarina brevicauda talpoides*. Milton, October 19, 1941, 2 males and 1 female, off same host; November 9, 1941, 1 male and 2 females, off same host; October 19, 1941, 1 female, off *Peromyscus leucopus noveboracensis*. Sagamore Beach, 2 males and 1 female, off *Blarina brevicauda talpoides*; July 13, 1941, 1 male, off same host. Westboro, 1 female, off same host. NEW HAMPSHIRE: Center Ossipee, August 17, 1941, 1 male and 2 females, off *Peromyscus maniculatus gracilis*; numerous specimens, off *Blarina brevicauda talpoides*. Lake Chocorua, 1 male, off same host.—VERMONT: Rutland, 1 male, off same host. Saxtons River, 1 male and 1 female, off same host.

Doratopsylla curvata Rothschild. No records of the occurrence of this species in New England are known to the writer. It has been collected off *Blarina* in New York State.

33. *Epitedia wenmanni* (Rothschild).—CONNECTICUT: Mount Carmel, 2 females, off mouse. MASSACHUSETTS: Barnstable, 1 male, off *Rattus n. norvegicus*; 1 female, off *Peromyscus leucopus noveboracensis*. Milton, October 26, 1941, 1 male and 1 female, off same host; November 9, 1941, 2 males, off same host; 1 female, off *Peromyscus maniculatus gracilis*; and 1 male, off *Microtus p. pennsylvanicus*. Penikese Island, 1 female, off same host. Wakefield, 1 female, off *Blarina brevicauda talpoides*. Westboro, 1 female, off *Peromyscus leucopus noveboracensis*. Oak Bluffs, January 16, 1942, off cottontail rabbit, 1 female (H. K. Gouck and C. N. Smith, Bishopp no. 31113). Gay Head, March 19, 1942, off *Microtus pennsylvanicus*, 1 female (Bishopp no. 31120); March 19, 1942, off *Peromyscus leucopus* ssp., 2 females (Bishopp no. 31121); and April 10, 1942, off same host, 2 females (Bishopp no. 31127). (All collected by H. K. Gouck.) NEW HAMPSHIRE: Center Ossipee, 4 males, off *Peromyscus maniculatus gracilis*;

1 female, off *Peromyscus leucopus noveboracensis*; October 12, 1941, 1 female, off same host; October 12, 1941, 1 female, off *Sciurus hudsonicus loquax*. VERMONT: Mendon, 1 female, off *Mustela c. cicognani*.

34. *Epidedia faceta* (Rothschild).—MASSACHUSETTS: The only New England record known to the writer is from Wilbraham, Massachusetts, male and female, off *Sciurus hudsonicus*. These two specimens are in the N. C. Rothschild Collection, in the British Museum.

Epidedia testor (Rothschild). No records of the occurrence of this species in New England are known to the writer. It was described from a female holotype collected at Lansingburgh, near Troy, New York, taken from a nest, presumably a mouse's. The male is not known as yet.

35. *Tamiophila grandis* (Rothschild).—MASSACHUSETTS: Milton, October 19, 1941, 1 male, off *Peromyscus leucopus noveboracensis*. Petersham, 1 female, off *Mustela n. noveboracensis*. Sagamore Beach, 1 female, off *Tamias striatus lysteri*. NEW HAMPSHIRE: Center Ossipee, 4 females, off same host. VERMONT: Mendon, 2 females, off same host. Saxtons River, 2 males and 4 females, off domestic dog. The dog represents an accidental host.

36. *Catallagia borealis* Ewing.—MAINE: The only New England record of this species known to the writer is the type specimen, a female, taken at Basin Pond, Mt. Katahdin, Maine, off *Microtus p. pennsylvanicus*. It is in the United States National Museum.

As is shown in a paper by the writer (1942b), *C. onaga* Jordan (New York State) is identical with this species, and is therefore a synonym of *C. borealis*.

Family Ischnopsyllidæ

37. *Myodopsylla insignis* (Rothschild).—CONNECTICUT: Kent, 8 males and 9 females, off bats. Canton Center, 5 females, off *Myotis l. lucifugus*. MASSACHUSETTS: Barnstable, December 17, 1933, 1 male, off same host (D. Griffin). Centerville, 1 male, off same host. Hatchville, numerous specimens, off same host. Mashpee, July 22, 1935, 2 males and 9 females, off same host (D.

Griffin). Pittsfield, 7 males and 6 females, off same host. Wrentham, 1 male and 1 female, off same host. NEW HAMPSHIRE: Franklin, 2 males and 6 females, off same host. VERMONT: Mt. Arolus, 1 female, off same host. Chittenden, 1 male, off *Pipistrellus subflavus obscurus* (F. L. Osgood); January 11, 1914, 1 female, off *Myotis l. lucifugus* (F. M. Allen).

SUMMARY

Of the thirty-seven species of fleas here listed from New England, five are reported for the first time in this paper: *Rectofrontia fraterna*, *Ceratophyllus riparius*, *Orchopeas caedens*, *Hystrichopsylla gigas tahavuaana*, and *Tamiophila grandis*.

The following species, not yet reported from New England, possibly occur there: *Conorhinopsylla stanfordi*, *Ceratophyllus celsus*, *Atyphloceras bishopi*, *Doratopsylla curvata*, *Epitedia testor*.

Thus far there is only one record of *Echidnophaga gallinacea* from this region. The human flea, *Pulex irritans*, has been reported only rarely from New England.

Ctenocephalides felis is the flea commonly found on cats and dogs and infesting human dwellings. *Ctenocephalides canis* has been taken only rarely in New England.

Xenopsylla cheopis, an important species in the transmission of typhus and bubonic plague, where these diseases occur, has been found on rats in Boston and other Atlantic seaports. *Nosopsyllus fasciatus*, however, is by far the commonest rat-flea in the New England region.

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